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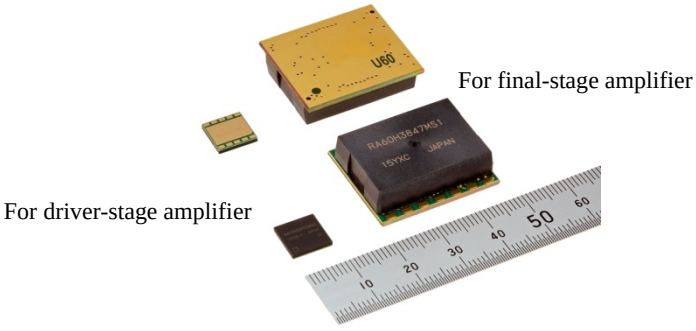
Mitsubishi Electric to Launch Silicon RF High-output MOSFET Modules for Professional Transceiver Equipment

First MOSFET module to offer automatic mounting on printed circuit boards of professional transceivers

TOKYO, June 15, 2016 – Mitsubishi Electric Corporation (TOKYO: 6503) announced today that it will commercially launch new silicon radio-frequency (RF) high-output metal-oxide-semiconductor field-effect transistor (MOSFET) modules capable of automatic mounting on printed circuit boards of professional radio equipment on July 1. As the first MOSFET models in the 60W-output class to offer this capability (according to Mitsubishi's own research as of June 15), the modules are expected to raise the productivity of professional radio equipment manufacturing by eliminating the need for screws and other mounting processes. Two types of modules providing the transmitter circuitry of professional transceiver equipment will be available as a pair.



Silicon RF high-output MOSFET module pair

High-power amps for professional radio equipment commonly are mounted on their cabinets with screws, which has prompted calls for more efficient mounting solutions. In addition to responding to this need, Mitsubishi Electric's new MOSFET modules will help reduce to the size and power consumption of radio equipment.

Product Features

1) First automatic-mounting MOSFET module

- The modules can be automatically mounted thanks to a heat-resistant design that can withstand the temperature of reflow solder, which will raise the productivity of radio equipment manufacturing

2) Optimized circuit design reduces size, weight and power consumption (compared to current RA series)

- Optimized circuitry and thermal design halve the modules' footprint and cut the current heatsink weight to one-third
- Power consumption has been lowered via an 80 percent reduction in required input power (currently 10mW) and a 5 percent improvement in drain efficiency (currently 60 percent overall)

3) Two module types available as a pair for professional radio equipment transmitters

- Driver-stage and final-stage modules, offered as a matched pair, free customers from having to design matching circuits, further raising manufacturing productivity

Sales Schedule

<table>
<tr><th rowspan="2">Operating frequency</th><th rowspan="2">Model*</th><th colspan="4">Specification</th><th rowspan="2">Shipment</th></tr>
<tr><th>Operating voltage</th><th>Input power</th><th>Output power</th><th>Power efficiency</th></tr>
<tr><td rowspan="2">135-175MHz</td><td>RA05H1317MS1</td><td rowspan="6">12.5V</td><td rowspan="6">10mW</td><td rowspan="6">85W</td><td rowspan="2">60%</td><td rowspan="6">July 1st</td></tr>
<tr><td>RA60H1317MS1</td></tr>
<tr><td rowspan="2">378-470MHz</td><td>RA05H3353MS1</td><td rowspan="2">53%</td></tr>
<tr><td>RA60H3847MS1</td></tr>
<tr><td rowspan="2">440-527MHz</td><td>RA05H3353MS1</td><td rowspan="2">52%</td></tr>
<tr><td>RA60H4453MS1</td></tr>
</table>

*Upper figure: driver-stage module; lower figure: final-stage module

Specifications

<table>
<tr><th>Module type</th><th>Model</th><th>Operating frequency</th><th>Output power</th><th>Drain efficiency</th><th>Input power</th><th>Operating voltage</th></tr>
<tr><td rowspan="2">Driver-stage module</td><td>RA05H1317MS1</td><td>135-175 MHz</td><td rowspan="2">5W</td><td rowspan="2">50-60%</td><td rowspan="2">10mW</td><td rowspan="2">12.5V</td></tr>
<tr><td>RA05H3353MS1</td><td>330-527 MHz</td></tr>
<tr><td rowspan="3">Final-stage module</td><td>RA60H1317MS1</td><td>135-175 MHz</td><td rowspan="3">60W</td><td rowspan="3">55-65%</td><td rowspan="3">4W</td><td rowspan="3">12.5V</td></tr>
<tr><td>RA60H3847MS1</td><td>378-470 MHz</td></tr>
<tr><td>RA60H4453MS1</td><td>440-527 MHz</td></tr>
</table>

Other Features

1) Matched circuitry lowers burden of RF circuitry designing

Embedded impedance-matching circuitry maximizes the high-power MOSFET's RF performance and thereby helps to shorten the development time for professional radio

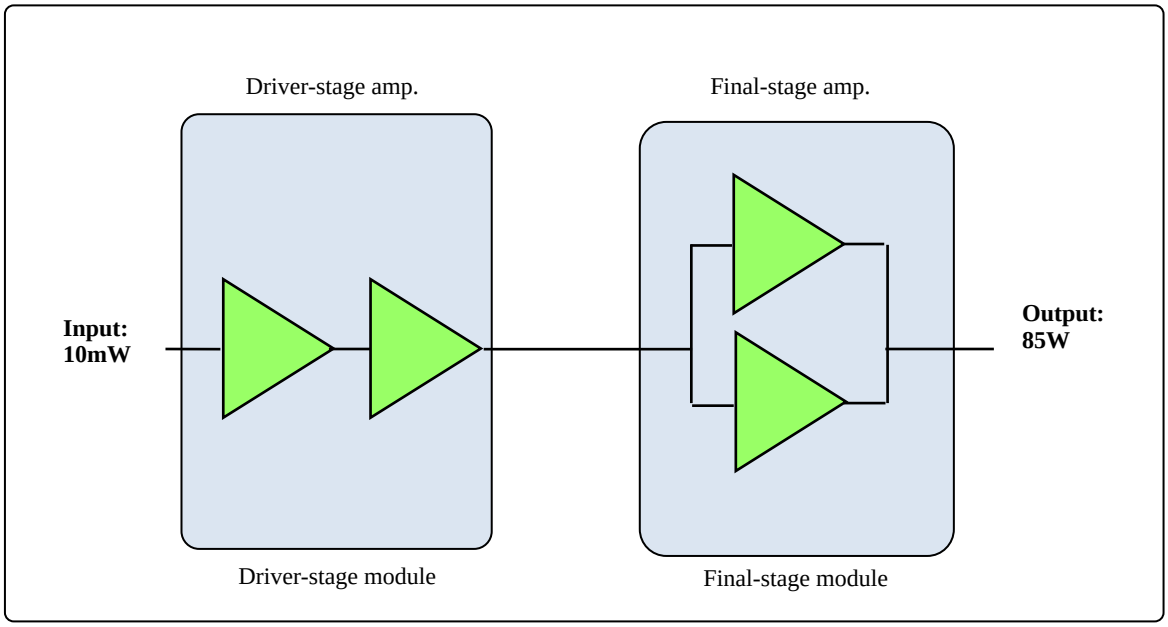
2) Increased design flexibility for radio equipment equipped for TDMA

Independent gate-voltage setting for each amplifier section facilitates flexible designing of radio equipment equipped for Time Division Multiplexing Access (TDMA), a wireless-communication multiplexing technology enabling multiple users to share the same time slot on the same frequency

3) Compatible with diverse international digital radio standards

Low-latency design raises the output-power response to gate voltage application by a factor of 10 (compared to existing products), enabling compatibility with digital radio standards in various countries, such as Digital Mobile Radio (DMR), digital Private Mobile Radio (dPMR), Professional Digital Trunking (PDT), Terrestrial Trunked Radio (TETRA) and APCO-P25 (P25)

Transmitter Circuitry of New Modules



Environmental Awareness

These products are compliant with the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) directive 2011/65/EU.

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About Mitsubishi Electric Corporation

With over 90 years of experience in providing reliable, high-quality products, Mitsubishi Electric Corporation (TOKYO: 6503) is a recognized world leader in the manufacture, marketing and sales of electrical and electronic equipment used in information processing and communications, space development and satellite communications, consumer electronics, industrial technology, energy, transportation and building equipment. Embracing the spirit of its corporate statement, Changes for the Better, and its environmental statement, Eco Changes, Mitsubishi Electric endeavors to be a global, leading green company, enriching society with technology. The company recorded consolidated group sales of 4,394.3 billion yen (US$ 38.8 billion*) in the fiscal year ended March 31, 2016. For more information visit:
www.MitsubishiElectric.com

*At an exchange rate of 113 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2016